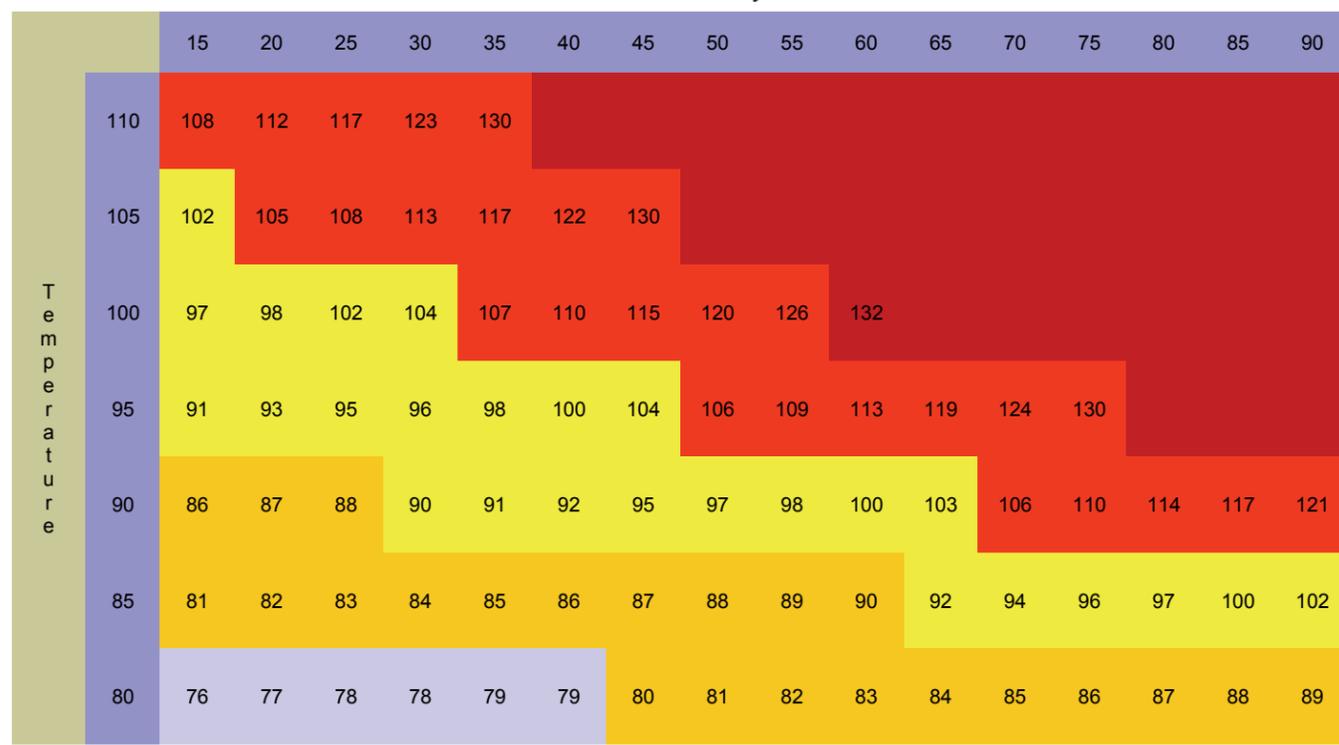


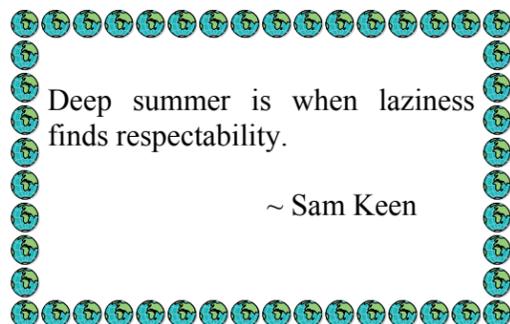
Heat Index Chart

% relative humidity



National Weather Service
824 Brown Co 14 S
Aberdeen SD 57401

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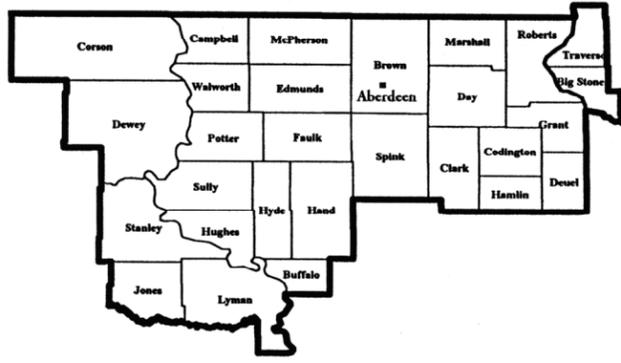


Deep summer is when laziness
finds respectability.

~ Sam Keen



We're on the Internet
<http://www.crh.noaa.gov/abr>



SKY SCANNER

National Weather Service Forecast Office
Aberdeen, South Dakota

July 2005



Summer Heat

Temperatures this summer, while not record breaking, have been high. When high temperatures combine with high relative humidity, it puts a severe strain on the human body. People cool themselves by sweating. When the humidity is high, sweat cannot evaporate to cool the body. The National Weather Service uses a special formula to arrive at an apparent temperature to account for the effects of high relative humidity. This apparent temperature is called the Heat Index (HI).

The Aberdeen NWS Office issues Heat Warnings and Advisories to warn the public when high Heat Index conditions are expected. A Warning will be issued when the Maximum HI is expected to equal or exceed 105 degrees and the overnight HI is expected to stay above 75 degrees.

An Advisory will be issued when the Max HI is expected to equal or exceed 100 degrees and the overnight HI is expected to stay above 75 degrees.

HEAT EXHAUSTION - Heavy sweating, weakness, skin cold, pale and clammy. Pulse thready. Normal temperature possible. Fainting and vomiting. Get victim out of sun. Lay down and loosen clothing. Apply cool, wet cloths. Fan or move victim to air conditioned room. Sips of water. If nausea occurs, discontinue use. If vomiting continues, seek immediate medical attention.

HEAT STROKE - (or sunstroke) High body temperature (106° F. or higher). Hot dry skin. Rapid and strong pulse. Possible unconsciousness. **HEAT STROKE IS A SEVERE MEDICAL EMERGENCY. SUMMON EMERGENCY MEDICAL ASSISTANCE OR GET THE VICTIM TO A HOSPITAL IMMEDIATELY. DELAY CAN BE FATAL.** Move the victim to a cooler environment Reduce body temperature with cold bath or sponging. Use extreme caution. Remove clothing, use fans and air conditioners. If temperature rises again, repeat process. Do not give fluids.

Heat Safety Rules:

Slow down. Strenuous activities should be reduced, eliminated, or rescheduled to the coolest time of the day. Individuals at risk should stay in the coolest available place, not necessarily indoors.

Dress for summer. Lightweight light-colored clothing reflects heat and sunlight, and helps your body maintain normal temperatures.

Put less fuel on your inner fires. Foods (like proteins) that increase metabolic heat production also increase water loss. Drink plenty of water or other non-alcohol fluids. Your body needs water to keep cool. Drink plenty of fluids even if you don't feel thirsty. Persons who (1) have epilepsy or heart, kidney, or liver disease, (2) are on fluid restrictive diets or (3) have a problem with fluid retention should consult a physician before increasing their consumption of fluids.

Do not drink alcoholic beverages. Do not take salt tablets unless specified by a physician. Persons on salt restrictive diets should consult a physician before increasing their salt intake. **Spend more time in air-conditioned places.** Air conditioning in homes and other buildings markedly reduces danger from the heat. If you cannot afford an air conditioner, spending some time each day (during hot weather) in an air conditioned environment affords some protection.

Don't get too much sun. Sunburn makes the job of heat dissipation that much more difficult.

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Early June High Wind Event

By Dan Mohr

From the late afternoon on June 7th through the early morning of June 8th, central and northeast South Dakota as well as Big Stone and Traverse counties in west central Minnesota experienced one of the most damaging severe thunderstorm events of the past several years. In the late afternoon of June 7th, a line of thunderstorms developed across western South Dakota and moved east across all of central and northeast South Dakota as well, as west central Minnesota, through the early morning hours of June 8th. Widespread damage occurred with hundreds of grain bins damaged or destroyed, countless buildings damaged or destroyed, along with numerous trees, power lines and poles downed.

In anticipation of severe weather, the Storm Prediction Center put the area under a moderate risk for severe weather expected during the afternoon and nighttime hours. Later in the day, the Storm Prediction Center issued a tornado watch for a large part of central and northeast South Dakota. Although several tornados did occur across the area, extreme straight-line winds took the show.

The National Weather Service in Aberdeen warned 27 out its 28 counties of responsibility during the event with some of the counties being warned several times. Most of the warnings were severe thunderstorm warnings for high winds and hail with several warnings issued for tornados and flash flooding. For example, Corson County was warned five times for severe weather and one time for flash flooding.

A total of 65 severe weather reports were received during the event. Extreme winds of 60 to over 100 mph were reported across central and northeast South Dakota as well as west central Minnesota. Not only were the winds strong, they persisted at several locations for quite some time. National Weather Service survey teams confirmed that five tornados had occurred. Flash flooding was also a problem across parts of north central and northeast South Dakota.

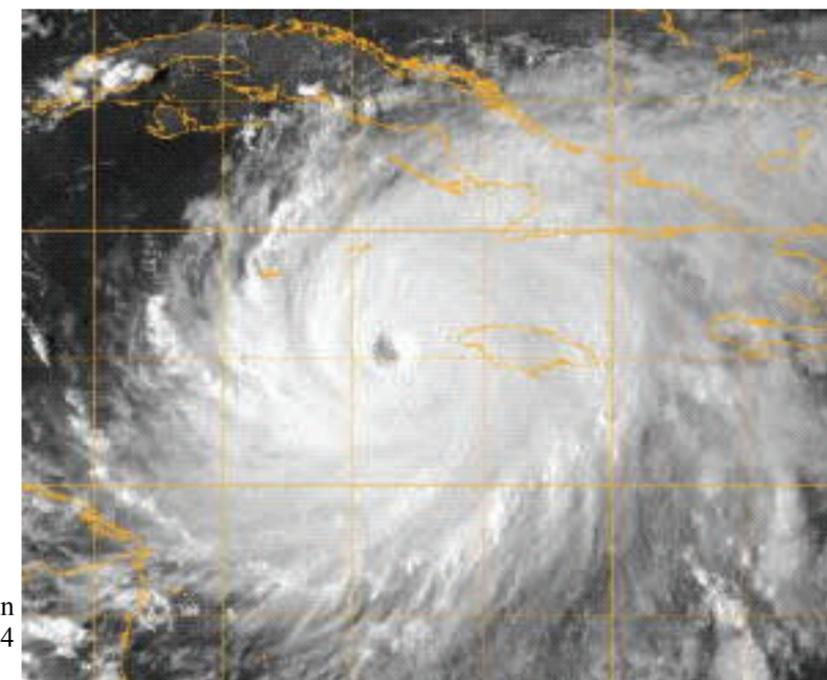
The following are some of the highest wind reports (estimated/measured) received which were well above the severe thunderstorm minimum criteria. **Note: A severe thunderstorm is defined as having winds of 58 mph or greater and/or large hail ¾ of an inch or greater.**

- 72 mph Hayti/Hamlin
- 75 mph 1 SE Florence/Codington
- 78 mph Fort Pierre/Stanley
- 80 mph 6 SE McIntosh/Corson, 29 WSW Fort Pierre/Stanley and Toronto/Deuel
- 83 mph Mansfield/Spink
- 85 mph Brentwood Colony/Faulk
- 92 mph 8 SE Faulkton/Faulk
- 95 mph 5 W Gettysburg/Potter
- 100 mph Cresbard/Faulk
- 102 mph Mellete/Spink
- 113 mph 1 W Onida/Sully

For this event, the tornados occurred in Faulkton, near Conde, west of Groton, and near Frederick and Hecla. The strongest tornado occurred in Faulkton which destroyed a large fertilizer building. Large hail also occurred during this event with the largest hail measured at one inch. The June 7th and 8th line of severe thunderstorms clearly showed that extreme straight-line winds can do as much damage as tornados.

Saffir-Simpson Hurricane Intensity Scale

Category 1	74-95 mph
Category 2	96-110 mph
Category 3	111-130 mph
Category 4	131-155 mph
Category 5	156+ mph



Hurricane Ivan
September 2004

Table 1. Progress of the average Atlantic season (1944-1996). Date upon which the following number of events would normally have occurred.

Number	Named systems	Hurricanes	Category 3 or greater
1	July 11	Aug 14	Sep 4
2	Aug 8	Aug 30	Sep 28
3	Aug 21	Sep 10	-
4	Aug 30	Sep 24	-
5	Sep 7	Oct 15	-
6	Sep 14	-	-
7	Sep 23	-	-
8	Oct 5	-	-
9	Oct 21	-	-

Hurricane Season 2005

By Melinda Albrecht

Another active hurricane season is underway in the Atlantic following a devastating year for hurricanes during 2004. The 2005 Atlantic hurricane season is off to an abnormally early start as well, with 5 named storms already occurring this season. This feat usually does not occur until September 7th. The hurricane season in the Atlantic runs from June 1st through November 30th, with the peak occurring from mid-August through mid-October. The average date for the first named storm is July 11th, with the first named storm this year, Tropical Storm Arlene forming more than a month early on June 8th. An average date for the first hurricane is August 14th, but this year Tropical Storm Dennis was upgraded on July 6th to become the first hurricane of the 2005 season. Hurricane Dennis also became the first major hurricane of the 2005 season, which is a hurricane rated Category 3, 4, or 5 on the Saffir-Simpson Scale. This occurred on July 7th, nearly two months before the average date for the first major hurricane of September 4th. Hurricane Emily spinning in the Caribbean Sea is currently a Category 3 storm and has been as much as a Category 4. Emily is the second major hurricane of the season, occurring more than 2 months ahead of the average date for two major hurricanes being September 28th.

With all this early activity, it appears that the National Hurricane Center's 2005 Atlantic Hurricane Outlook is on track, with another above normal hurricane season expected. The 2005 outlook calls for 12 to 15 tropical storms, with 7 to 9 of those storms becoming hurricanes. Of the hurricanes, 3 to 5 are forecast to become major hurricanes. The expected above normal activity will continue the trend of above normal hurricane activity in the Atlantic basin present since 1995. Normal activity is considered to be 10 tropical storms, with 6 storms being upgraded to hurricanes including 2 major hurricanes per season.

In comparison to the 2004 season, the 2005 season is expected to be slightly more active. The 2004 outlook called for 12 to 15 tropical storms, 6 to 8 hurricanes with 2 to 4 major hurricanes. In actuality, 15 tropical storms occurred, with 9 increasing to hurricanes. Of the 9 hurricanes, 6 became major hurricanes throughout the 2004 season. The state of Florida bore the brunt of the destruction of all the storms making landfall in the United States in 2004, and has already been hit by 2 storms this season. Tropical Storm Arlene made landfall just west of Pensacola, FL with sustained winds of 50 mph in mid-June. Hurricane Dennis, a Category 3 borderline Category 4 storm, followed nearly the same path as Arlene, stomping across the western Florida Panhandle near Pensacola on July 10th. Both of these storms hit the same area ravaged by Hurricane Ivan in September 2004.

Last year alone Florida was hit by 5 systems, Tropical Storm Bonnie in early August 2004 causing little damage. Hurricane Charley followed shortly after in August battering the southwest coast of the Florida Peninsula near Port Charlotte. This storm accounted for nearly \$14 billion in damages as it moved ashore as a Category 4 hurricane. Hurricane Frances tore through the eastern peninsula of Florida in early September as a Category 2 storm. It was responsible for almost \$9 billion in damages. The most devastating storm to hit Florida in 2004 was Hurricane Ivan, causing \$14.2 billion in damages as it pushed inland as a Category 3 hurricane. It had weakened some before moving ashore, as it had reached Category 5 three times throughout its lifetime from September 2nd through September 24th. The last storm to hit Florida, Hurricane Jeanne, followed a path similar to Hurricane Frances. Hurricane Jeanne also making landfall as a Category 3 storm caused \$6.9 billion in damages along the eastern coast of the Florida peninsula. Hopefully the onset of early tropical activity will not bring the magnitude of destruction to the affected areas in 2005 that the devastating 2004 hurricane season had to offer.

2005 Severe Weather

By George Marshall

This summer season is setting up to be one of the worst for severe weather in recent years. So far for 2005, the Aberdeen NWS office has issued 30 Tornado Warnings, 214 Severe Thunderstorm Warnings, 15 Flash Flood Warnings and many Urban and Small Stream Advisories.

Tornado Warnings have been issued for Brown, Campbell, Clark, Codrington, Corson, Day, Edmunds, Faulk, Grant, Jones, McPherson, Marshall, Roberts and Spink Counties. Numerous Severe Thunderstorm Warnings have been issued for each of the 28 counties covered by the Aberdeen NWS office. The office has received reports confirming severe weather, either a Tornado, $\frac{3}{4}$ " or larger hail or winds of 58 mph or greater in every one of those 28 counties.

There have been 12 confirmed Tornadoes this summer in the area covered by the Aberdeen NWS office. Tornadoes have occurred in Brown (5), Codrington (3), Edmunds (1), Faulk (1), McPherson (1) and Spink (1). Most of these were rated F0 on the Fujita Scale. The exceptions were: 2 of the Brown County Tornadoes and the Faulk County Tornado being rated F1.

There have been 211 reports of severe hail ($\frac{3}{4}$ " or larger) or winds (58 mph or greater) across the area. Much more severe weather occurs than is reported. There are large gaps in rural areas, where no one lives, and we seldom receive reports from these locations

The largest hail reported was 3" in diameter in Jones County. There was also 1 report of 2" hail and 12 reports of golfball (1.75") size hail. There were numerous reports of hail between $1\frac{1}{2}$ " and $\frac{3}{4}$ ". Every county has reported hail $\frac{3}{4}$ " or larger except Buffalo, Hyde, Lyman, and Potter Counties.

The strongest wind reported was a 113 mph gust in Sully County, but there were many reports of 100 mph winds across a wide area, covering Stanley, Hughes, Sully, Potter, Hyde, Faulk, Edmunds, Spink and Brown Counties, during this same event. Every county has reported winds of 60 mph or greater.

Heavy rains, some in excess of 6 inches, have lead to flash flooding in Brown, Campbell, Corson, Day, Grant, Hand, Marshall and Roberts Counties in South Dakota; and Traverse County in Minnesota.

It is still only the middle of July. There is much of the summer still to come, and we expect more severe thunderstorm activity across the area. Make sure you have a Severe Weather Plan, and know what to do when Severe Weather threatens.



1-605-225-0519

When significant or unusual weather events occur, give us a call! We're always happy to hear from the public, especially if you're calling to report freezing rain, snow accumulations of 2" or more, or severe weather. Don't wait until the next day...call us when it's happening.

Recent Flooding in Northeastern South Dakota

By Amy Liles

After a rather dry start to the year, many residents and areas of northeastern South Dakota have seen their fill of rain. The weather pattern became quite active in June which brought numerous rounds of severe thunderstorms with heavy rain to the region. Portions of northeastern South Dakota were hit particularly hard with heavy rain on June 29th, 2005.

It began in the early morning hours with a supercell thunderstorm (or rotating thunderstorm) that developed and redeveloped over northern Brown County. Supercells are notorious for dropping large amounts of rainfall. This particular supercell was no different, however, it was also moving extremely slow, almost stationary, and redeveloping over the same area of northern Brown County. Rainfall amounts of up to 2-3 inches fell with this one particular storm.

Meanwhile, a large line of thunderstorms developed just south of the supercell into Spink County. This line of storms was orientated north/south and was moving to the northeast at about 30 mph as it merged with the Brown County supercell. A pattern called "echo-training" developed from these thunderstorms. Echo-training means that several thunderstorms continued to develop and travel over the same area for an extended period of time. Consequently, heavy rain continuously fell over the same region all morning, causing water levels to rise rapidly and flash flooding to occur. As much as 4-5 inches fell over much of Northeastern South Dakota with this line of storms. The combination of the supercell over Brown County, as well as the echo-training line of strong thunderstorms over Brown, Day, Marshall, and Roberts Counties, resulted in widespread flash flooding of roads, rivers, farmsteads and crops over a large area.

To make matters worse, another round of supercell thunderstorms developed during the afternoon hours over northeastern South Dakota. These thunderstorms dropped another 1-2 inches of rain on already saturated and flooded ground. Flash Flood Warnings were issued for Brown, Day, Marshall, and Roberts that day by the National Weather Service in Aberdeen, as a total of up to 6 inches of rain fell over the entire area.

By the early morning hours on June 29th, water covered many township roads and county highways in Brown and Marshall Counties. A woman went off the road in her car as she drove into running water over County Road 4 in Marshall County at 545am. As the water levels continued to rise, more reports came into the National Weather Service office. By 4pm, running water over county roads and large amounts of crops under water were reported from areas in Roberts and Day Counties. Water surrounded many homes and farmsteads in both Brown and Marshall Counties by the afternoon hours as well. The flooded waters continued to be a growing threat even into the evening hours. One home was completely flooded near Britton in Marshall County, and the family had to be rescued from the rising waters. On the next page are some aerial pictures of the extensive flooding in Northeastern South Dakota from the heavy rainfall on June 29th, 2005. Currently, ponding of water can still be seen in many fields and ditches. River levels remain high with River Flood Warnings in effect for moderate flooding occurring along the James River and Mud Creek in Columbia, Groton, Stratford and Ashton.

Reminder: Flash Flooding is the #1 weather-related killer in the United States. Nearly half of the fatalities from flash flooding are auto-related. Flash floods can occur very suddenly with little or no warning. Prepare a family disaster plan for all weather-related hazards and listen to NOAA Weather Radio (<http://www.crh.noaa.gov/abr/nwr.htm>) for the latest weather information. For more information on flash floods, visit <http://www.nws.noaa.gov/om/brochures/ffbro.htm>

Flooding on Mud Creek just north of Groton